Notice of Allowability	Application No.	Applicant(s)	
	10/529,249	RAZAVI, ABBAS	
	Examiner	Art Unit	
	RIP A. LEE	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *November 25, 2008*.

2. ☒ The allowed claim(s) is/are *21, 23-27 and 32-41*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *12/02/2008* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Diane L. Kilpatrick-Lee on December 2, 2008.

Claim 21, line 15 delete " , a hydrocarbyloxy"

Claim 21, line 16 delete "radical having from 1-20 carbon atoms"

Claim 39, line 16 delete " , a" which appears after the word "atoms"

Claim 39, line 17 delete "hydrocarbyloxy radical having from 1-20 carbon atoms"

Basis for amendment: Amendment precludes *bis*hydrocarbyloxy complexes.

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance: Claims 21, 23-27, 32-41 are allowed over the closest references cited below.

The present invention is drawn to a metallocene catalyst system comprising (a) a bridged hafnocene-based catalyst of general formula $R''(CpR_n)_gHfXQ_{3-g}$ in which n is 4, g is 2, Q is a hydrocarbyl radical or a halogen, and X is a heteroatom ligand wherein the heteroatom is nitrogen, phosphorus, oxygen, or sulfur, and (b) at least one unbridged zirconocene substituted with at least one bulky substituent or an iron complex of 2,6-*bis*(imino)pyridyl ligand, and (c) and activating agent selected from the group consisting of a borate, a borane, or an aluminate. Another aspect of the invention is drawn to a process for the polymerization of an olefin in the presence of said catalyst. See claims for full structural and process details.

Canich *et al.* (U.S. 6,194,341) discloses a process for polymerization of olefin(s) in the presence of a mixed transition metal catalyst system comprising one late transition metal component and one early transition metal component, $Me_2Si(N\text{-}tBu)(C_5Me_4)TiX_2$, where X = Cl, Me.

Loveday *et al.* (U.S. 6,248,845) teaches a process for polymerization of olefin(s) in the presence of a catalyst containing a substituted hafnocene of formula $R''(C_5H_{5-d-f}R''_d)HfQ_{g-e}$ wherein Q which is halogen, hydrocarbyl, alkoxide, aryloxide, amide, or phosphide. The second component is an early metal metallocene complex or a post-metallocene.

Maddox *et al.* (U.S. 6,465,386) teaches a process for polymerization of olefin(s) in the presence of a catalyst containing a bridged or unbridged metallocene and a post-metallocene complex which includes the series of 2,6-*bis*(imino)pyridyl complexes of iron or cobalt.

Mecking (U.S. 6,262,196 and DE 198 23 871) teaches a process for polymerization of olefin(s) in the presence of a catalyst containing a bridged or unbridged metallocene and a post-metallocene complex which includes the series of 2,6-*bis*(imino)pyridyl complexes of iron or cobalt.

Kisten (DE 100 17 663) teaches a process for polymerization of olefin(s) in the presence of a catalyst containing a bridged or unbridged metallocene and a post-metallocene complex that is a 2,6-*bis*(imino)pyridyl complex of iron.

Bennett *et al.* (WO 99/50318) teaches a process for polymerization of olefin(s) in the presence of a catalyst containing a bridged or unbridged metallocene and a post-metallocene complex which includes the series of 2,6-*bis*(imino)pyridyl complexes of iron or cobalt.

Kimberley *et al.* (WO 99/46302) teaches a process for polymerization of olefin(s) in the presence of a catalyst containing a bridged or unbridged metallocene and a post-metallocene complex which includes the series of 2,6-*bis*(imino)pyridyl complexes of iron or cobalt.

Christie *et al.* (U.S. 6,608,140) teaches a process for polymerization of olefin(s) in the presence of a catalyst containing a first catalyst comprising a metallocene catalyst, Philips catalyst, or a Ziegler-Natta catalyst, and a second catalyst that is an iron 2,6-*bis*(imino)pyridyl complex.

Heinemann *et al.* (DE 199 60 123) teaches a dual catalyst comprising a first transition metal component that is a 2,6-*bis*(imino)pyridyl complex and a second transitional metal component that is a constrained group catalyst or a metallocene catalyst. The first transition metal component contains mixed ancillary ligands methyl (hydrocarbyl) and trifluoromethansulfonate (heteroatom ligand).

None of the cited references discloses or fairly suggests a catalyst comprising the claimed hafnocene containing mixed ancillary ligands X and Q in conjunction with an unbridged zirconocene substituted with at least one bulky substituent or an iron complex of a 2,6-*bis*(imino)pyridyl ligand.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu S. Jagannathan, can be reached at (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

/Rip A. Lee/
Art Unit 1796

December 2, 2008

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796